Remarks

The amendments above are made in order to add new apparatus claims closely modeled after the method claims originally filed. The addition of the figure and references to them are to support the newly filed claims to satisfy the requirement of 37 C.F.R. 1.83(a) that every claimed element be shown. No new matter has been added. A copy of a newly added FIG. 1 is submitted under separate cover for approval in accordance with MPEP §608.02. It is respectfully submitted that the drawing is in proper form and a notice to that effect is respectfully requested.

Regarding the addition of apparatus claims, the originally filed specification fully supports these claims since, as the specification makes clear, the invention is an improvement in known prior art algorithms that are implemented in known hardware environments. The specification also refers to a particular hardware environment, namely a computer. The particulars of the hardware are not required to understand how to make and use the invention and as such are not discussed in any detail.

The Figure and the attending discussion added by the above amendment do not elaborate on the hardware any further than the originally filed specification and thus do not involve the addition of new matter.

Respectfully submitted,

By _____
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Marked up Specification

Page 1, in the paragraph beginning on line 18, change as follows:

Motion in image-sequences is analyzed for various reasons.
Referring to Fig. 1, for example, ~~For example,~~ it is a component of
various methods for image-sequence (e.g., video) quality
enhancement 20, generation of interpolated frames 30 between the
frames of an image-sequence, image-sequence compression 40, removal
of noise 50 present in image-sequences, and more. For example,
motion estimation can be used to improve images because it allows
images of different frames to be averaged. Averaging reduces noise
because images of the same subject taken over and over, if
averaged, produces a higher quality representation of the subject
than any of the original images. In image-sequences, such as
video, successive frames are often very similar except for the fact
that parts of the image are displaced relative to their positions
in other frames. For example, a truck drives by and each frame
shows the truck in a slightly different position. Even though the
frames are different, by compensating for the motion it is possible
to average the displaced parts of their images.

Page 12, before the paragraph and heading beginning on line 1, add the following new paragraph:

<u>BRIEF DESCRIPTION OF THE DRAWING</u>

<u>Fig. 1 illustrates various processes to which the invention is applicable.</u>

Page 12, in the paragraph beginning on line 2, change as follows:

According to an embodiment, the image property used for the above method <u>(and, of course, consistent with Fig. 1)</u> is an average color of the region. The problem of calculating a field of displacement vectors that satisfies both correspondence and smoothness constraints may be expressed in the following way: Find a set of displacement vectors d(r) that minimizes a combination (e.g. a linear combination) of correspondence energy $\mathbf{E_C}$ and smoothness energy $\mathbf{E_S}$: